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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,694	06/26/2001	Hiroyuki Sugimura	1508.65651	1760

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EXAMINER

NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,694

Applicant(s)

SUGIMURA ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-13 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to Amended claims 3, 7-8, 11 and 13 have been considered but are moot in view of the new ground(s) of rejection. **Therefore, this is Final action.**

Applicant cancelled claim 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Koji et al. (JP6051256) in applicant's IDS.

Koji et al. teach (Fig 1-5) a liquid crystal display device manufacturing system comprising:

- a loading table 301 on which a substrate 1 is loaded;
- a syringe (sleeve 5) arranged over the loading table and filled with a liquid crystal;
- a piston (shaft 4) inserted movably in the syringe;

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- a liquid crystal replenishing source 8 replenishing the liquid crystal 7 into the syringe 5 every time after the liquid crystal is supplied to the substrate 1 (enhancement), and an amount of the liquid crystal in the syringe 5 is maintain constant at point in time when the liquid crystal is supplied to the substrate (enhancement for transferring LC continuously into the substrate).
- a liquid crystal 2.

wherein the piston is pushed mechanically (claim 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaki et al. (US6322735B1).

Yamaki et al. teach (Fig. 11) a method for molding thermoplastic resin comprising the steps of:

- dropping a thermoplastic resin to the first surface of the first substrate from a thermoplastic resin supply needle 3 provided to a syringe in which the thermoplastic resin is filled; and

- dropping down the thermoplastic resin, that is adhered to a surface of the thermoplastic resin supply needle, onto the first substrate by an external force in a middle of dropping of the liquid crystal or after the liquid crystal is dropped.
- supplying the thermoplastic resin into the syringe by the defined amount.

wherein

- the external force is generated by blowing a gas 7 against the thermoplastic resin supply needle.
- a method of blowing the gas against the liquid crystal supply needle is a method of blowing the gas against the thermoplastic resin supply needle from an air supply needles that are arranged around the thermoplastic resin supply needle.
- the thermoplastic resin in the syringe is pushed out into the thermoplastic resin supply needle by a plunger that is pushed mechanically, or is pushed out into the thermoplastic resin supply needle by an air pressure.

However, Yamaki et al. fail to disclose a method for filling liquid crystal for forming the liquid crystal layer. Yamaki et al. invent a method for filling the thermoplastic resin layer to make liquid crystal display parts such as light guiding plates and diffuser panels.

Since the **thermoplastic resin and liquid crystal are both polymer solutions**,
therefore, the method of forming thermoplastic resin layer can be used to form the

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liquid crystal layer for improving flowability and as a result, a high transferability of liquid crystal (or thermoplastic resin) can be attained (col. 8 line 60 to col. 9 lines 9).

It is conventional art that liquid crystal display device manufacturing method comprise a step of forming a sealing member along a periphery of a display area on a first surface of a first substrate for preventing liquid crystal material contacting with the outside environment.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a molding thermoplastic resin method as Yamaki et al. disclosed with a filling liquid crystal method for improving flowability and as a result, a high transferability of liquid crystal (or thermoplastic resin) can be attained.

2. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koji et al. (JP6051256) in applicant's IDS in view of Yamaki et al. (US6322735B1).

Koji et al. teach (Fig 1-5) a liquid crystal display device manufacturing system comprising:

- a loading table on which a substrate is loaded; a syringe arranged over the loading table and filled with a liquid crystal;
- a liquid crystal supply needle fitted to a lower portion of the syringe, for dropping the liquid crystal;

wherein

- the air supplying means having air supply needles each has a blowing port directed to the liquid crystal supply needle, and at least two air supply needles are provided (claim 9).
- the syringe has a structure that drops the liquid crystal from the liquid crystal supply needle by a mechanical pressure (claim 10).
- the syringe and the loading table are arranged relatively movably (claim 11).

However, Koji et al. fail to disclose an air supplying means arranged around the liquid crystal supply needle, for blowing a gas against the liquid crystal supply needle.

Yamaki et al. teach the method of forming thermoplastic resin layer with an air supplying means arranged around the thermoplastic resin supply needle, for blowing a gas against the thermoplastic resin supply needle. Since the **thermoplastic resin and liquid crystal are both polymer solutions**, therefore, the method of forming thermoplastic resin layer can be used to form the liquid crystal layer for improving flowability and as a result, a high transferability of liquid crystal (or thermoplastic resin) can be attained.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device manufacturing system as Koji et al. disclosed and a molding thermoplastic resin method as Yamaki et al. disclosed with a filling liquid crystal method for improving

flowability and as a result, a high transferability of liquid crystal (or thermoplastic resin) can be attained.

3. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koji et al. (JP6051256) in applicant's IDS as applied to claim 11 in view of Shimano (US5277333A).

Shimano teaches a liquid crystal display device manufacturing system wherein the piston is pushed by air pressure for accurately discharging the predetermined amount of liquid crystal and preventing dripping of liquid crystal from the syringe.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device manufacturing system as Koji et al. disclosed with the piston pushed by air pressure for accurately discharging the predetermined amount of liquid crystal and preventing dripping of liquid crystal from the syringe.

Response to Arguments

Applicant's arguments filed on 11/13/2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

A. The liquid crystal replenishing source of amended claim 11 differs from the fine feeding mechanism 8 of Koji in respect to both purpose and timing (REMAKS page 8 lines 1-2).

B. Yamaki et al. disclose "gas that gives plasticity to the surface of the resin is supplied into the mold cavity to prevent to resin from solidifying in the mold cavity in the step of filling the resin" (REMAKS page 8 lines 16-19).

Yamaki et al. do not disclose "the problem solved by the present invention, in that the defined amount of the resin in one step is supplied with high precision by dropping down the resin adhered at the top nozzle, as in the invention of claim 1" (REMAKS page 10 lines 3-6).

Examiner's responses to Applicants' ONLY arguments are follows:

A. Koji discloses (in English abstract) the liquid crystal 7 present in the clearance between the shaft 4 and the inner surface of a sleeve 5 is pushed down toward the end of the nozzle 3 due to a spiral groove and can be dropped.

B Since the **thermoplastic resin and liquid crystal are both polymer solution, which can be solidified when cooling down**, the method of forming thermoplastic resin layer can be used to form the liquid crystal layer for (a) improving flowability and as a result, a high transferability of liquid crystal (or thermoplastic resin) can be attained; (b) preventing to liquid crystal from solidifying when cooling liquid crystal state into glassy state at needle or nozzle (The liquid crystal being solidified like thermoplastic resin can be found in references such as US 5632945 A, US 6124913 A, US4137192, EP000542028A1, JP406273707A).

Claims also do not recited feature "the defined amount of the resin in one ~~step is supplied with high precision by dropping down the resin adhered~~ at the top nozzle". Therefore the response' application is irrelevant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art-Unit-2871

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TARIFUR R. CHOWDHURY
PRIMARY EXAMINER